

Table 2. Detection of Echoviruses Using BGMK (BG) Cells And BGMK-hDAF (BG-D) Cells

Echo-4	*	DAY 1		DAY 2		DAY 3	
		BG	BG-D	BG	BG-D	BG	BG-D
	-1	1+	2+	2+	3+	3+	3+
		1+	2+	2+	3+	3+	3+
	-2	1+	2+	1+	2+	2+	2+
		1+	2+	1+	2+	2+	2+
	-3	-	1+	-	1+	2+	2+
		-	1+	-	1+	2+	2+
	-4	-	-	-	-	2+	1+
		-	-	-	-	1+	1+
	-5	-	-	-	-	1+	1+
		-	-	-	-	-	-
	-6	-	-	-	-	-	-
		-	-	-	-	-	-

Echo-9	*	DAY 1		DAY 2		DAY 3	
		BG	BG-D	BG	BG-D	BG	BG-D
	-1	2+	3+	4+	4+	4+	4+
		2+	3+	4+	4+	4+	4+
	-2	1+	2+	4+	4+	4+	4+
		1+	2+	4+	4+	4+	4+
	-3	-	1+	3+	3+	4+	4+
		-	1+	3+	3+	4+	4+
	-4	-	-	2+	2+	3+	3+
		-	-	2+	2+	3+	3+
	-5	-	-	1+	1+	2+	2+
		-	-	-	-	-	-
	-6	-	-	-	-	-	-
		-	-	-	-	-	-
	-7	-	-	-	-	-	-
		-	-	-	-	-	-
	-8	-	-	-	-	-	-
		-	-	-	-	-	-

Table 2. Detection of Echoviruses Using BGMK (BG) Cells And BGMK-hDAF (BG-D) Cells

Echo-6	*	DAY 1		DAY 2		DAY 3	
		BG	BG-D	BG	BG-D	BG	BG-D
	-1	-	4+	-	4+	-	4+
		-	4+	-	4+	-	4+
	-2	-	4+	-	4+	-	4+
		-	4+	-	4+	-	4+
	-3	-	4+	-	4+	-	4+
		-	4+	-	4+	-	4+
	-4	-	4+	-	4+	-	4+
		-	4+	-	4+	-	4+
	-5	-	1+	-	4+	-	4+
		-	1+	-	4+	-	4+
	-6	-	1+	-	4+	-	4+
		-	1+	-	4+	-	4+
	-7	-	1+	-	4+	-	4+
		-	-	-	4+	-	4+
	-8	-	-	-	4+	-	4+
		-	-	-	-	-	-

Echo-11	*	DAY 1		DAY 2		DAY 3	
		BG	BG-D	BG	BG-D	BG	BG-D
	-1	-	4+	-	4+	-	4+
		-	4+	-	4+	-	4+
	-2	-	4+	-	4+	-	4+
		-	4+	-	4+	-	4+
	-3	-	3+	-	4+	-	4+
		-	3+	-	4+	-	4+
	-4	-	2+	-	4+	-	4+
		-	2+	-	4+	-	4+
	-5	-	1+	-	4+	-	4+
		-	1+	-	4+	-	4+
	-6	-	1+	-	3+	-	4+
		-	1+	-	3+	-	4+
	-7	-	-	-	1+	-	2+
		-	-	-	1+	-	3+
	-8	-	-	-	-	-	-
		-	-	-	-	-	-

addition to the detection of a higher dilution of these echoviruses, BGMK-DAF also showed earlier detection of higher dilutions of these echoviruses.

For echovirus-6 and echovirus-11, BGMK cells failed to detect these two viruses. Importantly, in contrast, BGMK-hDAF cells detected highly diluted virus by day 1. While not intending to limit the invention to any particular mechanism, these results indicate that hDAF is essential for entry of these two viruses into BGMK cells.

B. Cocksackie Viruses

BGMK cells are the most sensitive cell line for the detection of Cocksackie B viruses and some Cocksackie A viruses. BGMK and BGMK-hDAF were compared for the detection of Cocksackie viruses A9, B1, B2, B4, and B5. The results are shown in Table 3.

Table 3. Detection of Cocksackie Viruses Using BGMK (BG) Cells And BGMK-hDAF (BG-D) Cells

Cox B1	*	DAY 1		DAY 2		DAY 3	
		BG	BG-D	BG	BG-D	BG	BG-D
-1		2+	4+	4+	4+	4+	4+
		2+	4+	4+	4+	4+	4+
-2		1+	4+	4+	4+	4+	4+
		1+	4+	4+	4+	4+	4+
-3		1+	4+	4+	4+	4+	4+
		1+	4+	4+	4+	4+	4+
-4		1+	3+	4+	4+	4+	4+
		1+	3+	4+	4+	4+	4+
-5		-	2+	4+	4+	4+	4+
		-	2+	4+	4+	4+	4+
-6		-	1+	2+	4+	4+	4+
		-	1+	2+	4+	4+	4+
-7		-	-	-	2+	-	4+
		-	-	-	-	-	-

Cox B5	*	DAY 1		DAY 2		DAY 3	
		BG	BG-D	BG	BG-D	BG	BG-D
-1		2+	4+	4+	4+	4+	4+
		2+	4+	4+	4+	4+	4+
-2		2+	4+	4+	4+	4+	4+
		2+	4+	4+	4+	4+	4+
-3		2+	4+	4+	4+	4+	4+
		2+	4+	4+	4+	4+	4+
-4		1+	2+	4+	4+	4+	4+
		1+	3+	4+	4+	4+	4+
-5		-	2+	4+	4+	4+	4+
		-	2+	4+	4+	4+	4+
-6		-	1+	1+	4+	4+	4+
		-	-	2+	4+	4+	4+
-7		-	-	-	-	-	4+
		-	-	-	-	-	-

Table 3. Detection of Coxsackie Viruses Using BGMK (BG) Cells And BGMK-hDAF (BG-D) Cells

Cox B2	*	DAY 1		DAY 2		DAY 3	
		BG	BG-D	BG	BG-D	BG	BG-D
	-1	3+	4+	4+	4+	4+	4+
		3+	4+	4+	4+	4+	4+
	-2	3+	4+	4+	4+	4+	4+
		3+	4+	4+	4+	4+	4+
	-3	2+	3+	4+	4+	4+	4+
		2+	3+	4+	4+	4+	4+
	-4	2+	2+	4+	4+	4+	4+
		2+	2+	4+	4+	4+	4+
-5	1+	1+	4+	4+	4+	4+	
	1+	1+	4+	4+	4+	4+	
-6	1+	1+	3+	3+	4+	4+	
	-	1+	3+	3+	4+	4+	
-7	-	1+	-	2+	3+	4+	
		-	-	-	-	-	

Cox A9	*	DAY 1		DAY 2		DAY 3	
		BG	BG-D	BG	BG-D	BG	BG-D
	-1	2+	4+	4+	4+	4+	4+
		2+	4+	4+	4+	4+	4+
	-2	2+	4+	4+	4+	4+	4+
		2+	4+	4+	4+	4+	4+
	-3	2+	4+	4+	4+	4+	4+
		2+	4+	4+	4+	4+	4+
	-4	1+	4+	4+	4+	4+	4+
		1+	4+	4+	4+	4+	4+
-5	1+	4+	4+	4+	4+	4+	
	1+	4+	4+	4+	4+	4+	
-6	-	2+	4+	4+	4+	4+	
	-	2+	4+	4+	4+	4+	
-7	-	1+	4+	4+	4+	4+	
	-	1+	4+	4+	4+	4+	
-8	-	1+	-	4+	-	4+	
	-	-	-	-	-	-	

The experiments described above in Example 2 were repeated using H292 and H292-hDAF cells instead of BGМК and BGМК-hDAF cells. Briefly, several echoviruses and Coxsackie viruses were serially diluted and inoculated into wells containing H292 and H292-hDAF cells and the CPE were observed daily. The results of these experiments are shown in Tables 6 and 7.

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Table 6. Detection Of Echoviruses Using H₂₉₂ Cells and H₂₉₂-hDAF (H₂₉₂-D) Cells

Echo-4	*	DAY 1		DAY 2		DAY 3	
		H ₂₉₂	H ₂₉₂ -D	H ₂₉₂	H ₂₉₂ -D	H ₂₉₂	H ₂₉₂ -D
	-1	1+	1+	2+	2+	4+	4+
		1+	1+	2+	2+	4+	4+
	-2	1+	1+	2+	2+	3+	3+
		1+	1+	2+	2+	3+	3+
	-3	-	-	1+	1+	3+	3+
		-	-	1+	1+	3+	3+
	-4	-	-	1+	1+	3+	2+
		-	-	1+	1+	3+	2+
	-5	-	-	-	-	2+	2+
		-	-	-	-	2+	1+
	-6	-	-	-	-	-	-
		-	-	-	-	-	-

Echo-9	*	DAY 1		DAY 2		DAY 3	
		H ₂₉₂	H ₂₉₂ -D	H ₂₉₂	H ₂₉₂ -D	H ₂₉₂	H ₂₉₂ -D
	-1	1+	1+	2+	2+	4+	4+
		1+	1+	2+	2+	4+	4+
	-2	1+	1+	2+	2+	4+	4+
		1+	1+	2+	2+	4+	4+
	-3	-	-	1+	1+	3+	3+
		-	-	-	1+	3+	3+
	-4	-	-	-	-	3+	3+
		-	-	-	-	-	3+
	-5	-	-	-	-	-	-
		-	-	-	-	-	-
	-6	-	-	-	-	-	-
		-	-	-	-	-	-

Table 6. Detection Of Echoviruses Using H₂₉₂ Cells and H₂₉₂-hDAF (H₂₉₂-D) Cells

Echo- 6	*	DAY 1		DAY 2		DAY 3	
		H ₂₉₂	H ₂₉₂ -D	H ₂₉₂	H ₂₉₂ -D	H ₂₉₂	H ₂₉₂ -D
	-1	1+	1+	2+	2+	3+	3+
		1+	1+	2+	2+	3+	3+
-2	-	-	-	1+	1+	2+	2+
	-	-	-	1+	1+	2+	2+
-3	-	-	-	1+	1+	2+	2+
	-	-	-	1+	1+	2+	2+
-4	-	-	-	-	1+	1+	1+
	-	-	-	-	-	1+	1+
-5	-	-	-	-	-	1+	1+
	-	-	-	-	-	-	1+
-6	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
-7	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
-8	-	-	-	-	-	-	-
	-	-	-	-	-	-	-

Echo- 11	*	DAY 1		DAY 2		DAY 3	
		H ₂₉₂	H ₂₉₂ -D	H ₂₉₂	H ₂₉₂ -D	H ₂₉₂	H ₂₉₂ -D
	-1	2+	2+	3+	3+	4+	4+
		2+	2+	3+	3+	4+	4+
-2	1+	1+	2+	2+	4+	4+	
	1+	1+	2+-	2+-	4+-	4+-	
-3	-	-	2+	2+	3+	3+	
	-	-	2+	2+	3+	3+	
-4	-	-	2+	2+	3+	3+	
	-	-	2+	2+	3+	3+	
-5	-	-	1+	1+	3+	3+	
	-	-	-	-	3+	3+	
-6	-	-	-	-	2+	2+	
	-	-	-	-	-	2+	
-7	-	-	-	-	-	-	
	-	-	-	-	-	-	
-8							